

REMARKS

In the present Amendment, claim 1 has been amended to include the recitation that “the first member is embedded with a biochip”. Claim 16 has been amended to include the recitations that “the second fillister has a space for a sample solution” and “the electrodes contact the sample solution”. The expression “at last” in claims 1 and 16 has been corrected to “at least”. The recitation “a plurality of pores” in claims 5 and 20 has been amended to “at least two openings”. The recitation with respect to the position of the electrode in claims 10 and 22 has been amended. The dependencies of claims 11, 23, and 24 have been amended to address antecedent basis issues. Claim 14 has been canceled and claims 25-29 are newly added. Claim 25, depending from claim 16, recites that the first member comprises a biochip. Claims 26-29 recite methods for enhancing hybridization efficiency using the reactor for microarray as claimed in claims 1 or 25.

Support for the amendments may be found, for example, on pages 9-13 of the specification.

Upon entry of the amendments, which is respectfully requested, claims 1-13 and 15-29 will be pending.

Claims 10-13, 16-19, and 20-24 are rejected under 35 U.S.C. 112, second paragraph. It is Applicant’s belief that the amendments to claims 10, 16, and 20 should address the Examiner’s concerns. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1-4 and 6-14 are rejected as being anticipated by Zhao et al (US 2002079219).

Applicant respectfully traverses the rejection for the reasons discussed below.

The claimed reactor for microarray, as recited in amended claim 1, features two or more electrodes to provide one or more electrical fields to promote the movement of the molecules of the sample solution in the reactor. The electrical field, the frequency of the alternating current, and the direction of the electrical field can be modulated. Collisions of molecules increase and this shortens the reaction time. In addition to disturbing the sample solution, the reactor of the present application obviates the need to raise the concentration of the sample nucleic acid or fine micromanufacturing. It is also unnecessary to elevate the reaction temperature or total circulation while using the reactor of the present invention.

Zhao et al discloses a microfluidic device having integrated components for conducting chemical operations. In the description related to FIG. 2, as recited in [0050]-[0063], it is clear that the device is for capillary electrophoresis and does not include a microarray or biochip for hybridization as recited in the present application. The microfluidic device of Zhao et al is apparently different from the claimed reactor for microarray. The microfluidic device of Zhao et al does not disclose or suggest the reactor of the present application. It is Applicant's belief that the amended claim 1 is allowable over Zhao et al. Insofar as claims 2-13 depend from claim 1, these claims are also allowable over Zhao et al.

Claims 5 and 20 are rejected under 35 USC 103(a) as being unpatentable over Zhao et al (US 20020079219) in view of Anderson et al (US 6168948).

Applicant respectfully traverses the rejection for the reasons discussed below.

Claims 5 and 20 depend from claims 1 and 16, respectively. Claims 1 and 16 are novel and nonobvious over Zhao et al, and their dependent claims are also patentable. Anderson et al

Amendment Under 37 C.F.R. § 1.111
U.S. Appln No. 10/620,360

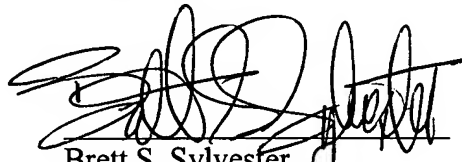
does not make up for the deficiencies of Zhao et al discussed above. It is to be noted that claim 5 recites that the second member comprises at least two openings for the sample solution or washing solution to be input or output. The second member is not comprised of porous material.

For these reasons, the Examiner is respectfully requested to reconsider and withdraw the section 103 rejection of claims 5 and 20 based on Zhao et al in view of Anderson et al.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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CUSTOMER NUMBER

Date: December 28, 2005